



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,145	07/12/2005	Marco Arimondi	05788.0323	1986

22852 7590 10/17/2006

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP  
901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER
----------

WONG, TINA MEI SENG

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/511,145

Applicant(s)

ARIMONDI ET AL.

Examiner

Tina M. Wong

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 32-65 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 51-65 is/are allowed.
- 6) ☒ Claim(s) 32,37 and 43-50 is/are rejected.
- 7) ☒ Claim(s) 33-36 and 38-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/14/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt from the International Bureau is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) in this national stage application, which papers have been placed of record in the file.

### ***Drawings***

The drawings are objected to because:

The drawings filed with this application on 14 October 2004, are objected to as being informal. Notice that in Figures 4A and 4B the labels on the figures are handwritten.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 32, 37, 43-50 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,594,429 to White.**

In regards to claims 32 and 62, White teaches a process for forming an intermediate perform for manufacturing a microstructure optical fiber comprising the steps of: (Figures 2-5)

- providing a cylindrical mold (11) defining a central axis, the mold further comprising a cylindrical container wall, a first base (13) and a removable second base (14)
- arranging within the mold a plurality of hole generating elements (161, 162, 163), thereby defining internal structural elements of the intermediate preform
- inserting a sol gel in the mold (17; Column 7, Lines 52-53)
- consolidating the sol gel so as to obtain a solid cylindrical polymer body (Figure 4; Column 7, Lines 60-65) defining the intermediate preform and having embedded the hole generating elements, the hole generating elements being releasably fixed (by element 12; Column 7, Lines 27-30) to the first and to the second base and comprising at least one hole generating element removable from said intermediate preform
- releasing the hole generating elements from the first and second base
- removing the second base from the mold

Art Unit: 2874

- removing the cylindrical intermediate preform from the mold, together with the therein embedded hole generating elements
- removing the removable hole generating element for forming an elongated hole inside the intermediate preform by applying a load (Column 7, Lines 30-31) to the removable hole generating element.

But White fails to specifically disclose inserting a fluid optical polymer material and consolidating a fluid optical polymer material. However, White does disclose inserting a sol gel and molding it into the formation of a gel. Furthermore, Applicant discloses in the specification an example of an accepted fluid optical polymer material is a sol gel polymer. (Specification, Page 4, Lines 2-5) Therefore, although not explicitly stated, White discloses a sol gel, which Applicant claims is an example of a fluid optical polymer material.

In regards to claim 37, White discloses thermally removing the hole generating elements from the mold. By thermally removing the hole generating elements, it is implied that heating of the element would be involved and therefore, melting a portion of the gelled preform.

In regards to claim 43, White discloses a plurality of hole generating elements removable from said intermediate preform and wherein the process comprises removing said plurality of removable hole generating elements for forming a predetermined pattern of elongated holes in the intermediate preform.

In regards to claim 44, White discloses a plurality of removable hole generating elements is symmetrically arranged around said central axis of the mold prior to removal of the intermediate preform from the mold.

In regards to claim 45, White discloses one central hole generating element coaxial to said central axis of the mold.

In regards to claim 46, White discloses after arranging within the mold plurality of hole generating elements, isolating the mold from the outside and cleaning the mould by recirculating through it a liquid and filtering the liquid. (Column 7, Lines 63-67)

In regards to claim 47, White discloses inserting a sol gel and pouring (through 17) a sol gel in the mold and wherein consolidating the sol gel comprises polymerizing the sol gel.

In regards to claim 48, White discloses the polymer precursor to be one of a monomer or a prepolymer.

In regards to claim 49, White discloses inserting a sol gel comprises pouring or injecting a molten sol gel in the mold and wherein consolidating the sol gel comprises cooling the molten sol gel so as to solidify the gel.

In regards to claim 50, White discloses inserting a sol gel in the mold and wherein consolidating the sol gel comprises sintering the gel.

***Allowable Subject Matter***

**Claims 33-36 and 38-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

In regards to claim 33, the prior art of record of record fails to disclose or reasonably suggest the removable hole generating element to have a diameter between 2 and 8 mm. In fact, White discloses the diameter to be in the order of  $\mu\text{m}$ .

Art Unit: 2874

In regard to claims 34-36, the prior art of record fails to disclose or reasonably suggest coating the removable hold generating element with a low adhesion layer.

In regards to claims 38-42, the prior art of record fails to disclose or reasonably suggest the details of the removable hole generating element to be a metal wire or stainless steel with the claimed diameters.

**Claims 51-65 are allowed.** The prior art of record fails to disclose or reasonably suggest a process for producing a calibrated intermediate polymer preform for manufacturing an optical fiber including all the steps of

- forming an intermediate polymer preform of elongated shape having an elongation axis, the polymer having a predetermined glass transition temperature  $T_g$ ;
- calibrating the intermediate preform, wherein calibrating comprises:
- stretching the intermediate preform during a stretching period by heating the preform at a predetermined stretching temperature above  $T_g$  and applying a tensional load (F) to the intermediate preform along its elongation axis, so as to cause its straining along the elongation axis, the stretching temperature, the tensional load and the stretching period being selected so as to impress a viscoelastic deformation to the intermediate preform
- cooling the intermediate preform to a temperature below  $T_g$  during a cooling period, while maintaining the stretched preform in tension, so as to avoid a substantial release of the viscoelastic deformation
- inserting the intermediate preform in a calibration tube having a cylindrical inner shape and

Art Unit: 2874

- heating the intermediate polymer preform to a calibration temperature above  $T_g$  during a calibration period sufficient to achieve a substantial release of the viscoelastic deformation.

A close prior art of record is U.S. Patent 6,594,429 to White relied upon in the above rejection.

#### ***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. None of the documents cited by the Examiner discloses or reasonably suggests the allowable subject matter discussed above.

The documents submitted by applicant in the Information Disclosure Statement have been considered and made of record. Note attached copy of form PTO-1449. None of the references submitted by Applicant discloses or reasonably suggest the allowable subject matter discussed above.

#### ***Inventorship***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).



*Conclusion*

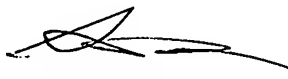
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Wong whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



TMW



SUNG PAK  
PRIMARY EXAMINER